

## Accepted Manuscript

Title: A morphology strategy to disentangle conductivity-selectivity dilemma in proton exchange membranes for vanadium flow batteries

Author: Sangshan Peng Xuemei Wu Songlan Sun Wanting  
Chen Min Li Jie Li Gaohong He



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Conductivity-selectivity dilemma in PEMs is disentangled by a morphology strategy.

Thin skinned asymmetric PEMs are fabricated by porogen-leaching-out method.

Low DS and defect-free skin layer fully guarantee low vanadium permeability.

Numerous interconnected pores are introduced to facilitate proton transfer.

APEM with both improved proton conductivity and ion selectivity is achieved.

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